

ABSTRACT OF THE DISCLOSURE

The present invention relates to a method and system for using end resonances of highly spin-polarized alkali metal vapors for an atomic clock, magnetometer or other system. A left end resonance involves a transition from the quantum state of minimum spin angular momentum along the direction of the magnetic field. A right end resonance involves a transition from the quantum state of maximum spin angular momentum along the direction of the magnetic field. For each quantum state of extreme spin there are two end resonances, a microwave resonance and a Zeeman resonance. The microwave resonance is especially useful for atomic clocks, but it can also be used in magnetometers. The low frequency Zeeman resonance is useful for magnetometers.